REMARKS

Applicant thanks the Examiner for the courtesy of a telephone interview on February 13, 2007. The Examiner, Applicant Jean Qiu, and Applicant's representative William Guerin discussed the automated English translation of Japanese patent document no. JP 2001/017157 to Iwaki Glass (hereafter "Iwaki Glass") and the English translation of German patent document no. DE 19952139 to Weiner (hereafter "Weiner") with respect to the rejections of independent claims 14 and 25 under 35 U.S.C. 103(a) according to the Office Action mailed October 20, 2006.

Claims 1-9, 14-19, and 21-29 were pending in the application at the time of the final Office Action. Claims 14-19 and 21-29 were presented for examination. The final Office Action rejects claims 14-19 and 21-29. This paper amends claims 14, 25, 28 and 29, cancels claims 21 and 22, and adds new claims 30-35. Claims 14-19 and 23-35 are now presented for examination.

Rejection of Claims 28 and 29 under 35 U.S.C. § 102

The Office Action rejects claims 28 and 29 under 35 U.S.C. §102(b) as being anticipated by German patent document no. DE 19952139 (hereafter "Weiner"). Applicant respectfully traverses the rejection to the extent it is maintained against the claims 28 and 29 as amended because the cited reference does not teach or suggest each and every element of Applicant's claimed invention.

Applicant's invention relates to a micro-pattern embedded optical film for cell-based assays. The optical film includes microscopically observable regions formed by contrast features having small depths or heights (e.g., less than five microns). The film is attached to at least one supporting component which provides mechanical strength for handling either manually or robotically. Additionally, the supporting component forms one or more volumes for holding a liquid containing the cells to be observed and also provides liquid containment for chemical reagents necessary for the cell-based assays. Advantageously, the cost for fabricating a device

for cell-based assays employing the optical film is small in comparison to the cost for conventional devices employed for cell-based assays. Moreover, unlike conventional grids used in similar measurements, the contrast features of the micro-pattern embedded optical film do not adversely influence the growth of cells due to their small depth or height. For example, feature depths or heights of less than five microns generally do not interfere with the growth or mobility of cells. In addition, a user of the device of the invention can observe the cells and the contrast features simultaneously, i.e., without the need to refocus.

Applicant's invention, as now set forth in independent claim 28, recites, in part, a micro-pattern embedded plastic optical film having regions formed by contrast features with "each of said contrast features having a depth or a height less than five microns." The small depth or height of the features allows the film to be in direct contact with the liquid having the cells without disturbing the growth or mobility of the cells. Weiner does not describe physical features of its grid pattern other than to state that the grid pattern is printed on the film. Print material can be detrimental to cell growth and mobility. Moreover, Weiner would not need to take advantage of Applicant's claimed contrast features having the recited depth or height limitation instead of the Weiner's disclosed printed grid pattern as the film taught in Weiner does not come in contact with the liquid containing the cells. Consequently, Weiner does not disclose or suggest each and every claimed limitation of Applicant's invention recited in claim 28. Therefore, Applicant respectfully requests that the rejection be withdrawn. Dependent claim 29 and new dependent claim 34 depend directly from independent claim 28, and incorporate all of its limitations, and are therefore also patentably distinguishable over the cited reference for at least the reason set forth above.

Rejections of Claims 14-19 and 21-29 under 35 U.S.C. § 103(a)

The Office Action rejects claims 14-19 and 21-29 under 35 U.S.C. §103(a) as being unpatentable over Japanese patent document no. JP 2001-17157 (hereafter "Iwaki Glass") in view of one or more of the following secondary references: U.S. Patent No. 5,712,161 to Koezuka et al. (hereafter "Koezuka), Weiner, U.S. Patent Publication No. 2002/0072113 to

Barbera-Guillem et al. (hereafter "Barbera-Guillem"), and German Patent No. DE 3732142 to Peters (hereafter "Peters"). Claims 21 and 22 are canceled herein therefore the rejections against these claims are rendered moot. Applicant respectfully traverses the rejections to the extent they are maintained against the other claims as amended because the cited references does not teach or suggest each and every element of Applicant's claimed invention.

Applicant's invention, as set forth in representative independent claim 14, recites a device for growth, identification and measurement of cells that includes a micro-pattern embedded plastic optical film having regions formed by contrast features each having a depth or a height less than five microns.

Iwaki Glass discloses a container for cell cultures. The container includes at least one small diameter bore in its bottom. A larger diameter glass plate 18 covers the bore from the bottom side of the container (see paragraph 20). A grid is formed on one of the surfaces of the tabular glass section 17 of the plate 18 by laser ablation or etching techniques (see paragraph 21).

The Office Action states that it would have been obvious to one of ordinary skill in the art to employ a plastic optical film (e.g., Koezuka) rather that glass as an alternative means to achieve the same result. Applicant respectfully disagrees. A mere substitution of plastic for glass would not result in Applicant's claimed device. More specifically, the grid pattern on the glass plate cannot be replicated on the plastic optical film to generate the contrast features having Applicant's recited small depth and height limitations. In addition, applying the grid fabrication techniques intended for glass to optical film can result in materials left on the film that are harmful to cells and can cause physical damage to the film.

The Office Action states that it would have been obvious to one of ordinary skill in the art to provide the contrast features required by Iwaki Glass using a separate optical film taught by Weiner as an alternative means for providing a reference grid used during the culture of cells while providing reduced manufacturing costs. Applicant respectfully disagrees. As discussed above, Weiner teaches a plastic film having an imprinted grid. The film is specifically provided for attachment to a side of a carrier opposite the cells. The film is not suitable for bonding to a

supporting component where the film would come in contact with the liquid containing the cells as the print material could be harmful to the cells. Moreover, Weiner teaches away from such use as the disclosed film has the expressed advantage that it need not be sterile.

For the reasons above, Iwaki Glass, in combination with either Koezuka or Weiner, does not disclose or suggest each and every claimed limitation of Applicant's invention as recited in independent claim 14. Independent claims 25 and 28 recite similar language to claim 14 and are patentable for at least those reasons given with respect to claim 14. The other secondary references (Barbera-Guillem and Peters) are used in the Office Action to provide a limitation introduced in the dependent claims that is not taught or suggested by Iwaki Glass, Koezuka and Weiner, but these references also do not teach or suggest the missing limitations identified above. Dependent claims 15-19, 23, 24, 26, 27 and 29, and new dependent claims 32-34 depend directly or indirectly from their respective independent claims and incorporate all of their respective limitations. Therefore claims 15-19, 23, 24, 26, 27, 29 and 32-34 are also patentably distinguishable over the cited references for at least the reasons provided for claim 14.

New independent claim 30 recites, in part, contrast features having a depth or a height less than a dimension of the cells to allow cell growth and cell mobility across the contrast features. As discussed above, the cited references, either alone or in combination, do not teach or suggest a film having contrast features with feature dimensions that are suitable for cell growth and mobility due to features. Thus Applicant submits that claim 30 is also patentably distinguishable over the cited references for at least those reasons provided in connection with claim 14. New dependent claims 31 and 35 depend directly from independent claim 30 and incorporate all of its limitations, and therefore are also patentably distinguishable over the cited references.

CONCLUSION

In view of the remarks made herein, Applicant submits that the application is in condition for allowance and request early favorable action by the Examiner.

If the Examiner believes that a telephone conversation with the Applicant's representative would expedite allowance of this application, the Examiner is cordially invited to call the undersigned at (508) 303-2003.

Respectfully submitted,

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